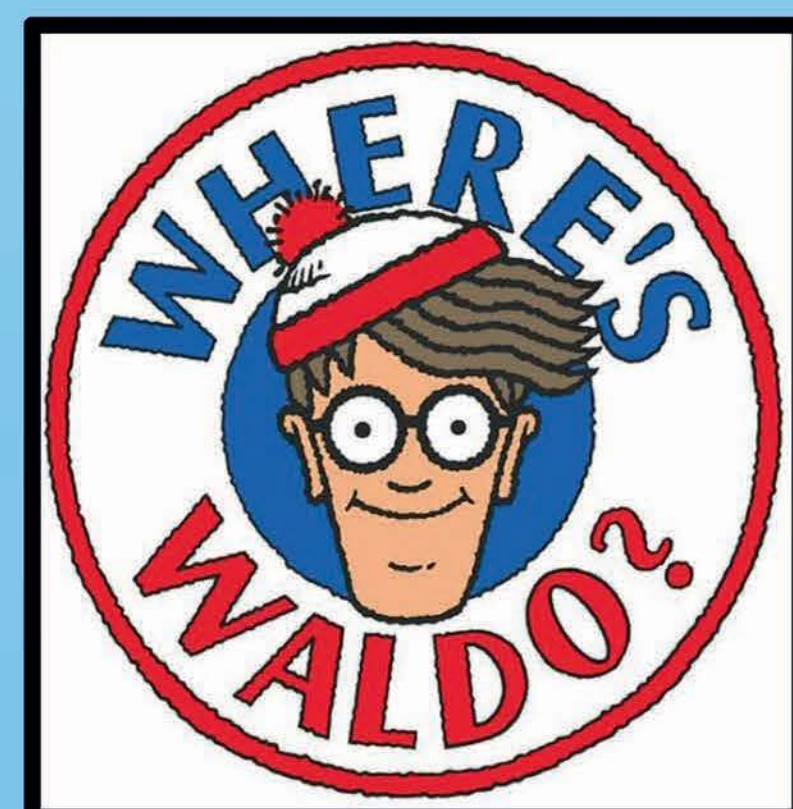


Background

- ❑ Attention Deficit Hyperactivity Disorder (ADHD) is frequently present in college students that struggle with attention and concentration that can eventually affect their academics.
- ❑ “Where’s Waldo?” is a complex visual recognition recreational game that may elicit greater motivation to participants than traditional neuropsychological visual attention tests.
- ❑ Previous studies have shown that eye-tracking technology has the capacity to differentiate those that have ADHD from those that do not have the diagnosis (Alex, 2014).
- ❑ According to Holland and Riley (2018) ADHD in childhood is greater diagnosed in boys than girls. However, Littman’s (2018) research indicated that gender differences significantly reduced in adulthood.
- ❑ The purpose of this study is to determine if eye-tracking technology can support self-reported symptoms of ADHD in a female-only college student sample.

Method

- ❑ A group of 60 healthy college students from Stephen F. Austin participated in the study by first taking the Adult ADHD Self-Report Scale (ASRS-v1.1; Kessler et al., 2005) that was used to assess ADHD symptomology.
- ❑ 10 participants were excluded due to not meeting inclusion/exclusion criteria. (e.g. males, graduate students, history of TBI)
- ❑ The study sample was 100% female (N=50), with a mean age of 22.10 years (SD=3.00, Range=19-35 years)
- ❑ The scale consists of 18-items that are rated using a 5-point scale (ranging from “0” for “never” to “4” for “very often”). The first 6-items or Part A, address inattention and were found to be the most predictive of symptoms consistent with ADHD.
- ❑ A Tobii X-260 eye-tracker was used to collect data of fixation count off-target, total fixation duration off-target, and time to the first mouse click on target.
- ❑ Fixation count was defined as the total number of off-target fixations on a stimulus.
- ❑ The visual task consisted of two different images of the game “Where’s Waldo” by Martin Handford found in a game by Brainstorm (2013).
- ❑ The images were labeled as “Easy to find Waldo” based on a previous study.

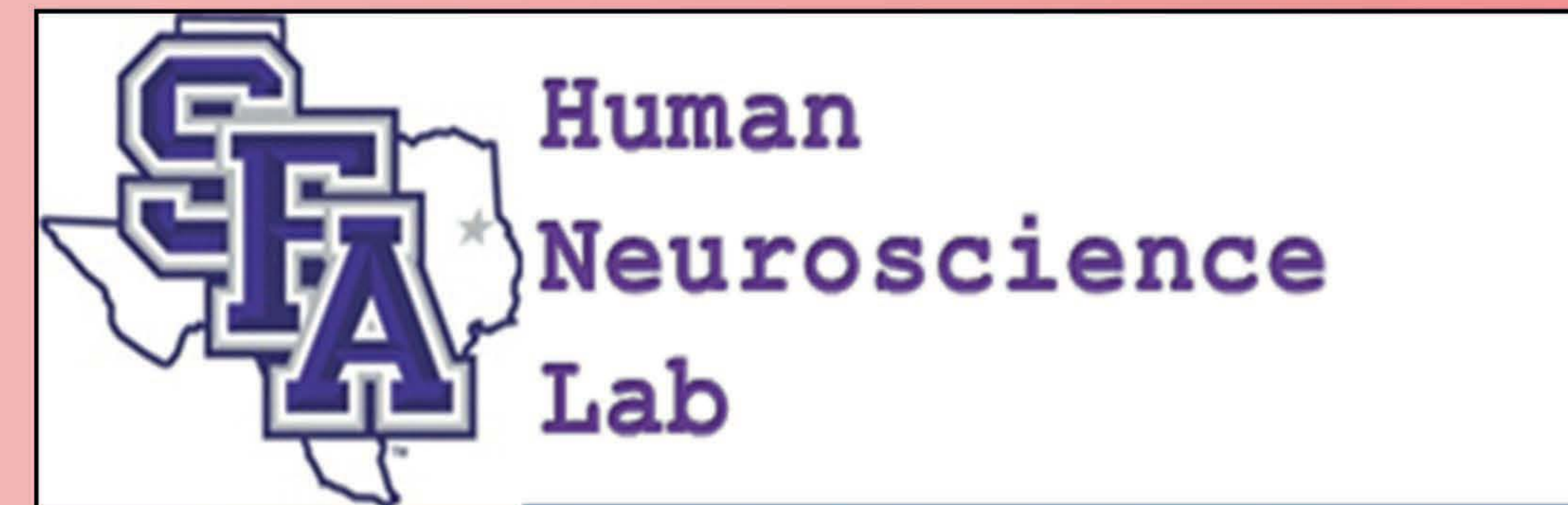


<https://www.rjjulia.com/event/wheres-waldo-celebration>

The Capacity of Eye-Tracking Technology to Determine Non-Diagnosed ADHD in Females.

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Advisor: Dr. Luis Aguerrevere



Figures

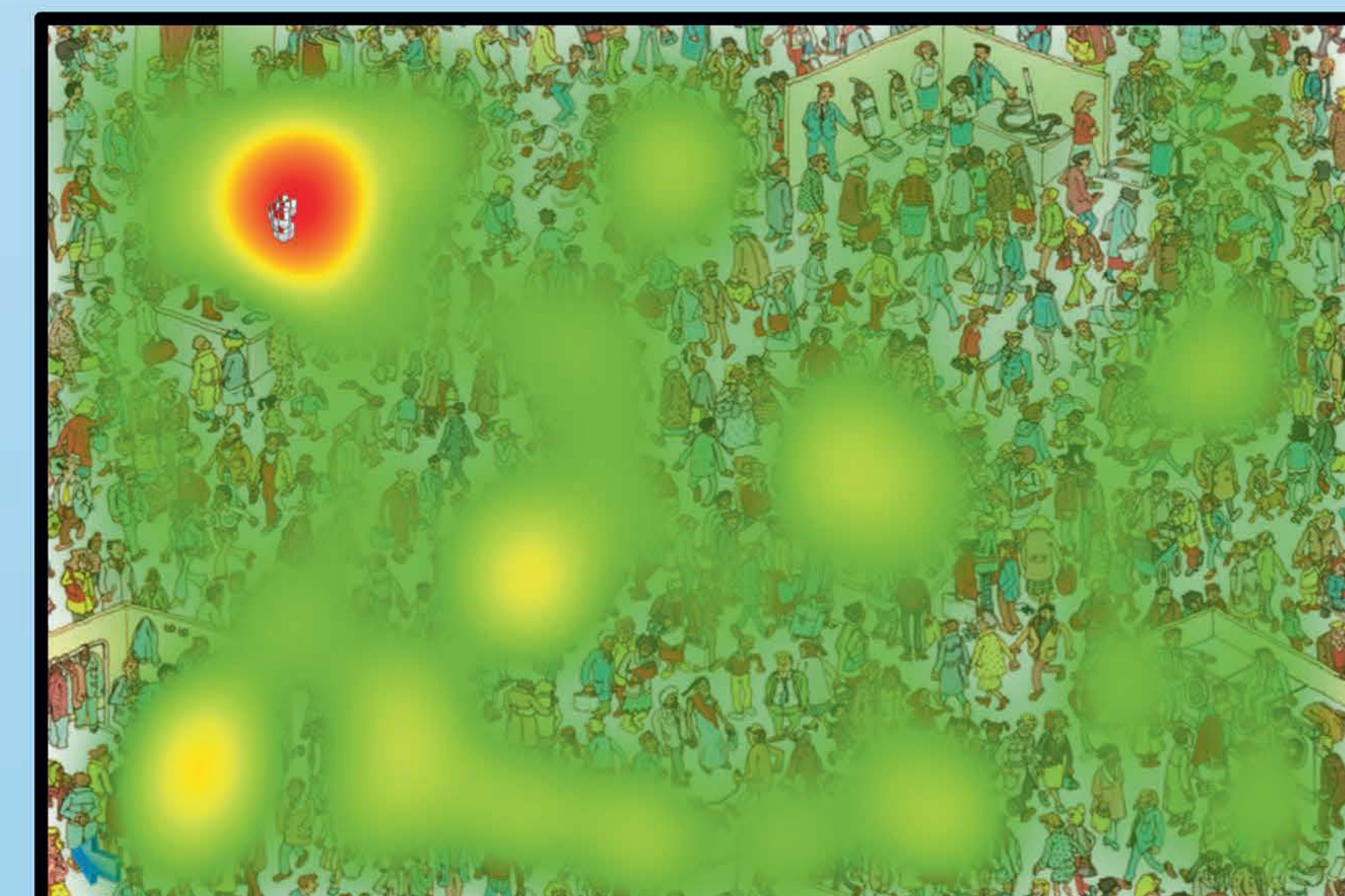
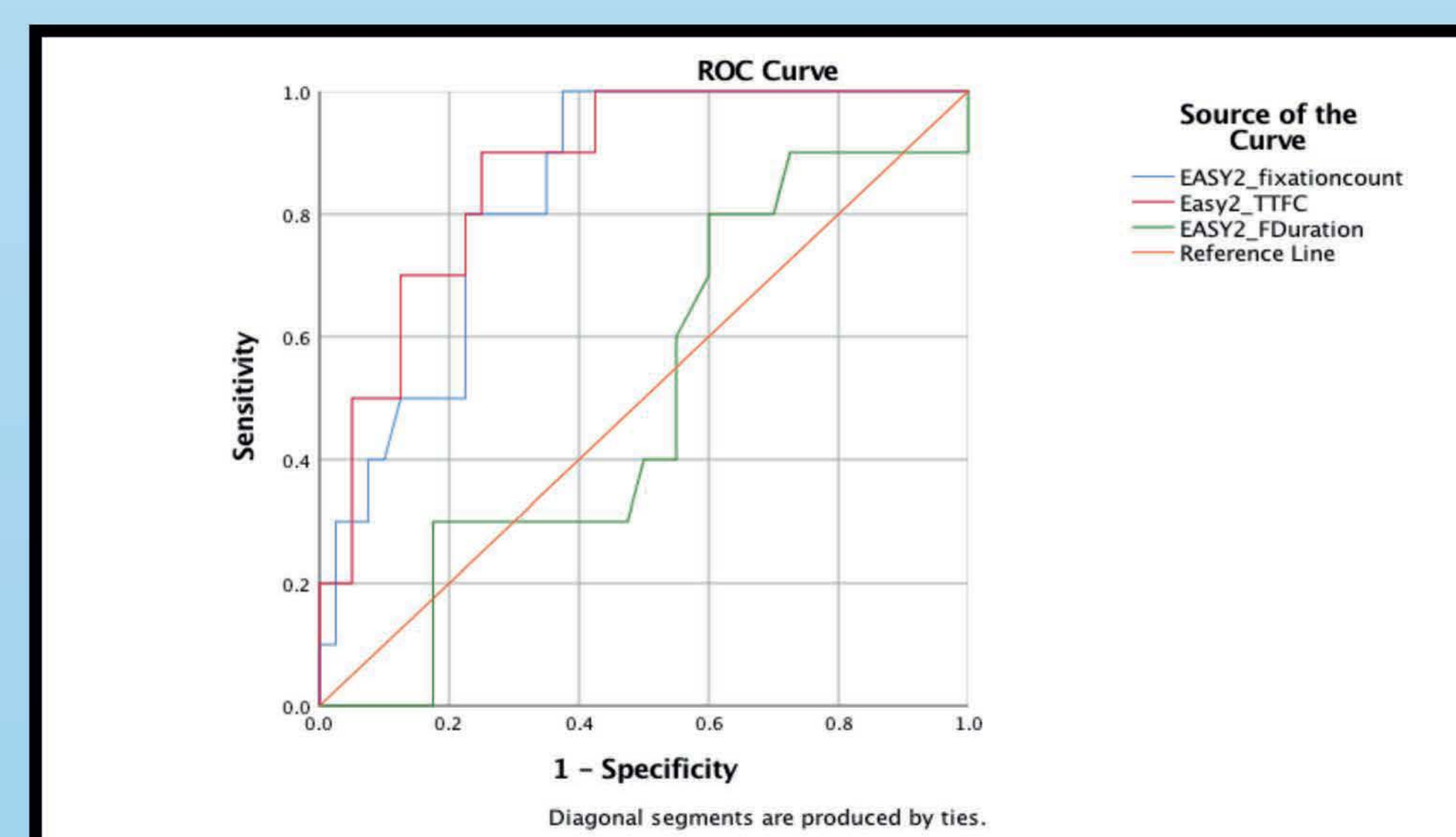


Figure 2: Heat Map Fixation Count, Non-ADHD group

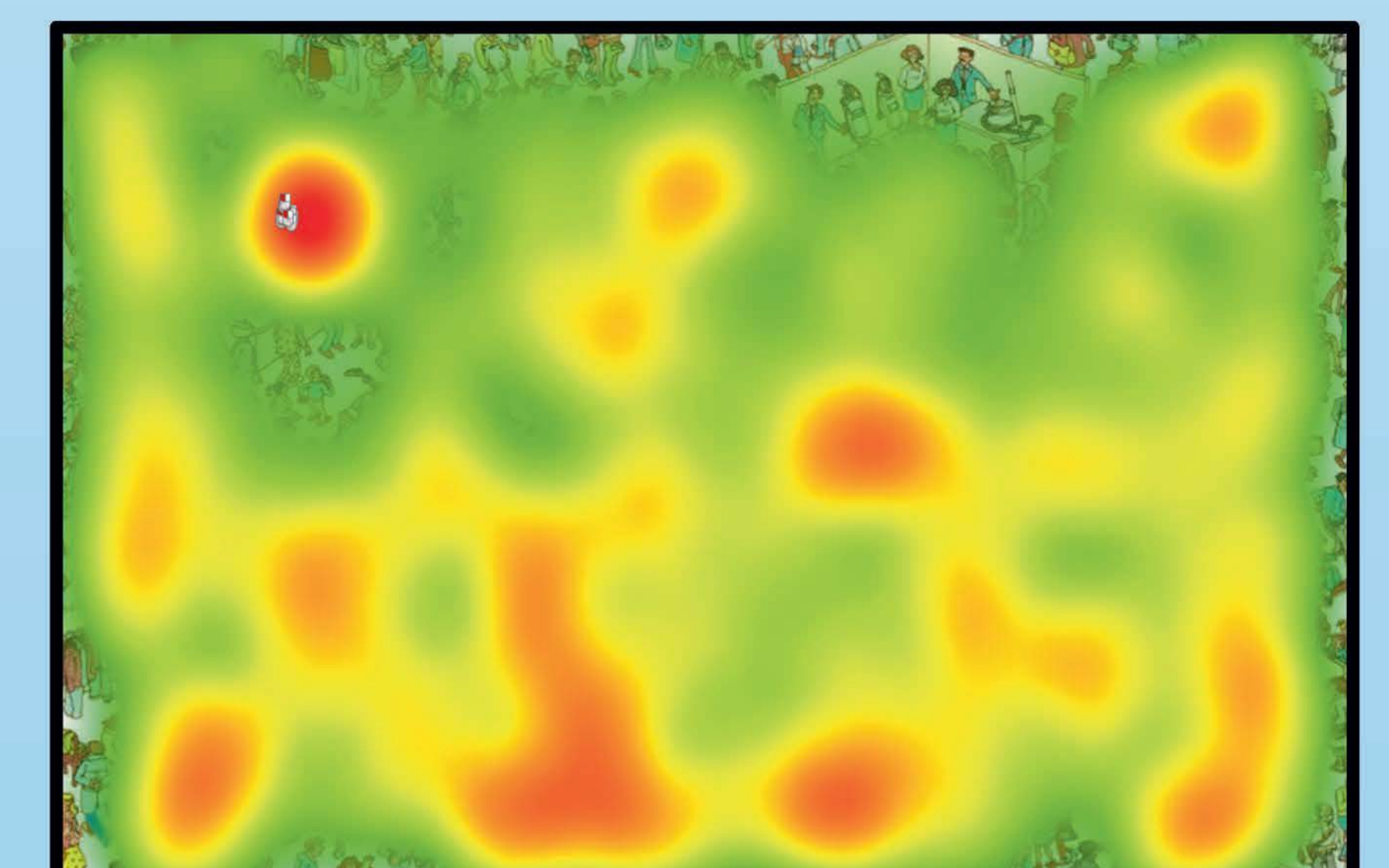
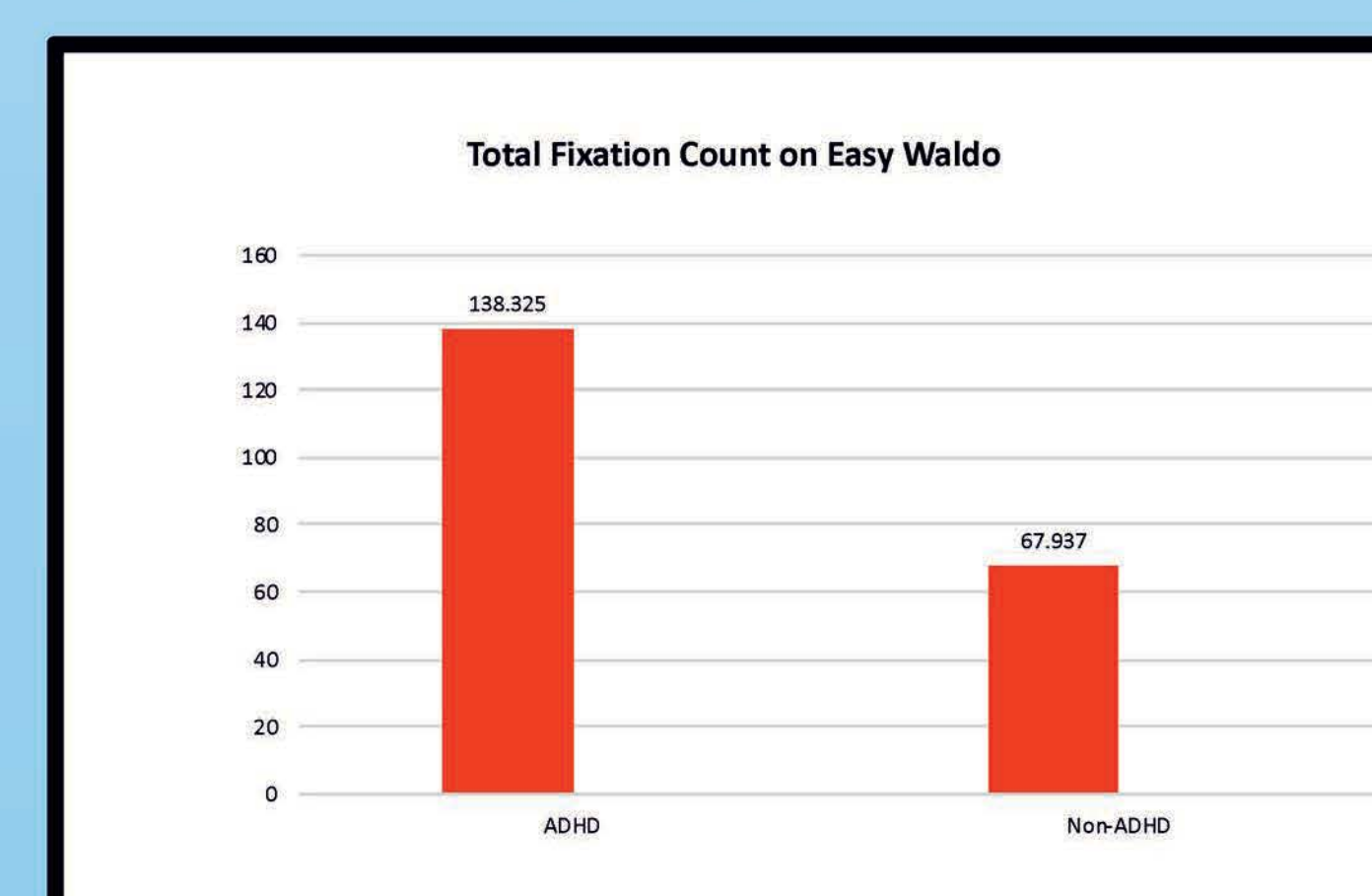
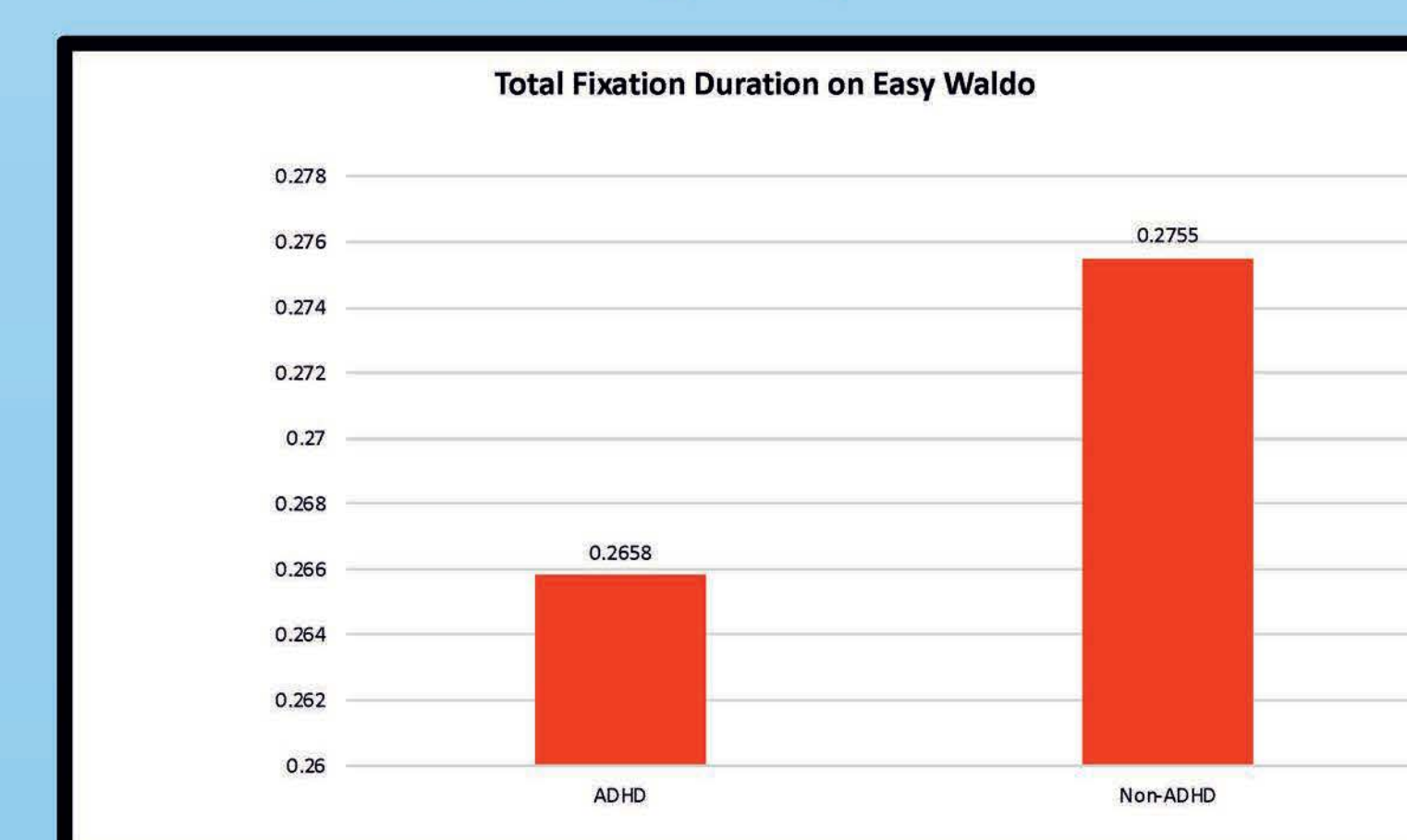


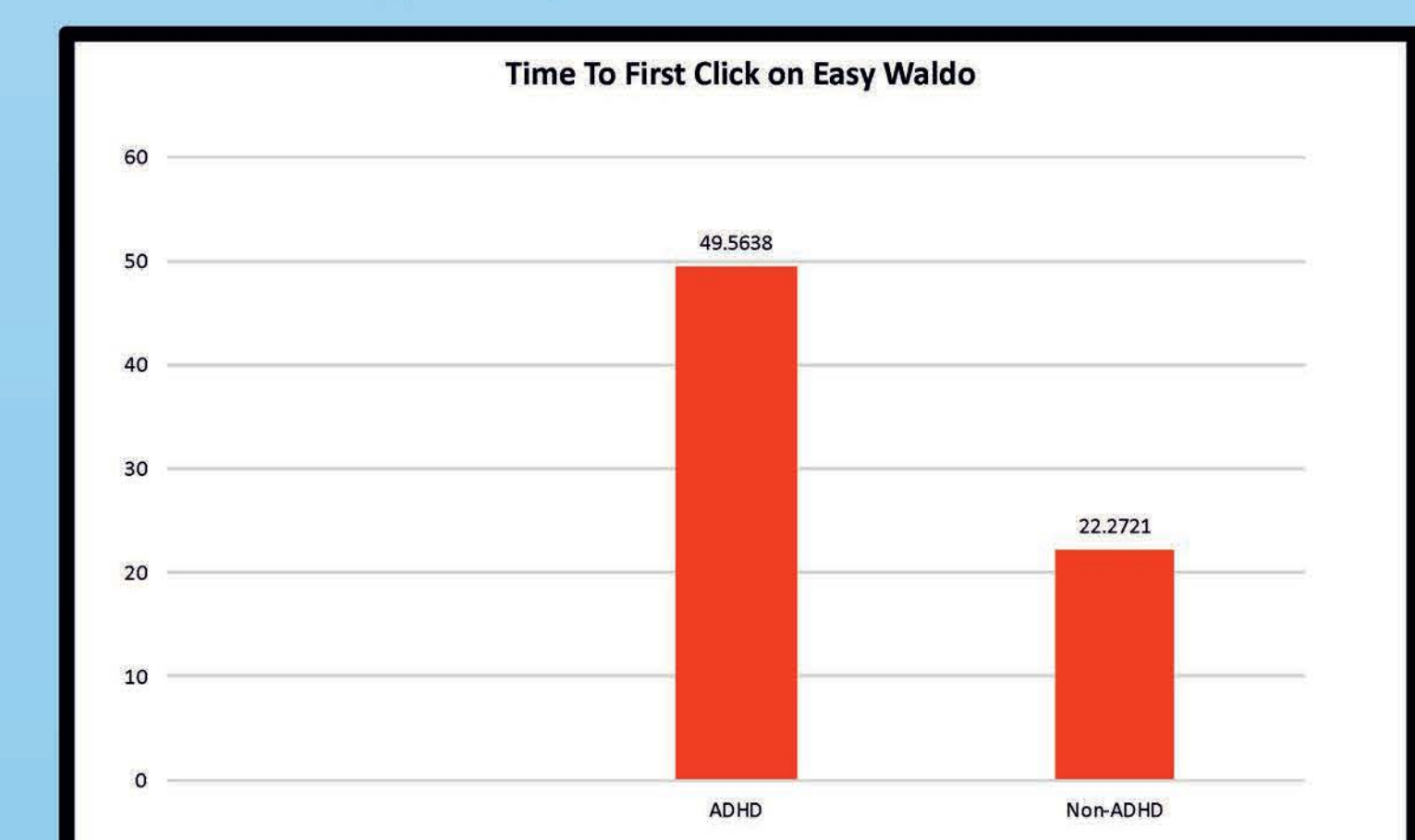
Figure 3: Heat Map Fixation Count, ADHD group



Graphic 1: Mean Fixation Count of Easy Waldo (Diagnosed ADHD v. Undiagnosed ADHD Students)



Graphic 2: Mean Fixation Duration of Easy Waldo (Diagnosed ADHD v. Undiagnosed ADHD Students)



Graphic 3: Time To First Click of Easy Waldo (Diagnosed ADHD v. Undiagnosed ADHD Students)

Results

- ❑ Results from the ASRS-v1.1 indicated that 10 (19.6%) participants met the criteria for ADHD.
- ❑ A Receiver Operating Characteristics Curve (ROC) analysis shows that the number of fixations in the “Waldo” task was able to differentiate those students with ADHD from the non-ADHD students across a range of scores.
- ❑ The score that best differentiated non-ADHD from ADHD students was = 85.
- ❑ Results indicate when finding “easy” Waldo, individuals with fixations higher than 85 are 20 times more likely to have ADHD.

Conclusions

- ❑ About 20% of our sample met the criteria for ADHD, which is higher than the 3.2% prevalence of current ADHD among the U.S. population (NIH 2017).
- ❑ Eye-tracking was able to identify students who noted no signs of ADHD in the self-reported test, to have some form of the symptoms.
- ❑ Future work with eye-tracking technology should be considered in college assessment centers to identify students with attention difficulties and in turn, help them overcome some of their academic struggles.

Acknowledgment

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